REMARKS

Claims 1, 3, 4 and 6-10 are pending in the present application and are rejected.

Applicants' Response to the Double Patenting Rejections

Claims 1, 3, 4 and 6-10 were provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-9 of co-pending Application No. 11/051,462 in view of Murschall et al. '758 (U.S. Patent No. 6,855,758) or Murschall et al. '843 (U.S. Patent Application Publication No. 2003/0091843).

Claims 1, 3, 4 and 6-10 were provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-13 of co-pending Application No. 11/172,904 in view of Murschall et al. '758 (U.S. Patent No. 6,855,758) or Murschall et al. '843 (U.S. Patent Application Publication No. 2003/0091843).

It is the position of the Office Action that each of the '462 application and the '904 application discloses the manufacture of a biodegradable plastic using a carbodiimide and optionally including an ultraviolet absorber. The Office Action relies on Murschall '758 or Murschall '843 to disclose the use of a benzotriazole as an ultraviolet absorber.

This rejection is a provisional rejection. Therefore, it is not necessary to respond to the rejection. Applicants respectfully defer action at this time.

Applicants' Response to Claim Rejections under 35 U.S.C. §103

Claims 1, 3, 4 and 6-10 were rejected under 35 U.S.C. §103(a) as being unpatentable over Imamura et al. (U.S. Patent No. 5,616,657) in view of Murschall '758 or Murschall '843.

Claims 1, 3, 4 and 6-10 were rejected under 35 U.S.C. §103(a) as being unpatentable over Ariga et al. (U.S. Patent No. 6,803,443) in view of Murschall '758 or Murschall '843.

It is the position of the Office Action that Imamura and Ariga disclose the production of a polyester from aliphatic components. The Office Action further relies on Imamura and Ariga to teach the inclusion of ultraviolet inhibitors, including benzotriazoles and a stabilizer including carbodiimides. However, both Imamura and Ariga disclose the use of benzotriazole or carbodiimides. The Office Action relies on Murschall '758 and Murschall '843 to teach the conjunctive use of a benzotriazole as an ultraviolet inhibitor and a carbodiimide as a stabilizer. It is the position of the Office Action that "[t]he employment of the two recited additives is deemed to be conventional to those having ordinary skill in the art, and subsequent use in the composition of Imamura et al [or Ariga et al], on the suggestion thereof would have been obvious to an artisan of ordinary skill."

In response to the Declaration by Iida filed on February 26, 2007, the Office Action states that it "has been considered, but is not deemed to be relevant." The Office Action states that the Declaration did not address the reasons for the rejections. Further explanation of the Declaration is provided below.

I. Imamura does not disclose all limitations of the invention as claimed

The Office Action also provides for a new interpretation of Imamura. Specifically, the Office Action states that Imamura teaches at column 19, lines 32-38 the inclusion of "(a) an oxidation inhibitor, (b) an ultraviolet absorbent such as ....(c) benzotriazole *or* a stabilizer...***and*** (d) a carbodiimide." (emphasis and notations of "(a)", "(b)", "(c)" and "(d)" added by Examiner). Accordingly, the Office Action states that "either (a) or (b) or (c) is used, and (d) is used. That clearly embraces the choice of (b) benzotriazole and (d) carbodiimide." This original passage of Imamura is reproduced below:

> Further, an oxidation inhibitor such as 2,6-di-t-butyl-4-methylphenol (BHT) and butyl hydroxyanisole (BHA), an ultraviolet absorbent such as salicylic acid derivative, benzophenone and benzotriazole or a stabilizer such as phosphoric ester and carbodiimide may be used to enhance the thermal stability during formation.

Applicants respectfully submit that this passage is improperly interpreted by the Office Action. This passages actually teaches that an oxidation inhibitor, an ultraviolet absorbent, or a stabilizer may be used to enhance the thermal stability during formation. According to this passage, 2,6-di-t-butyl-4-methylphenol (BHT) and butyl hydroxyanisole (BHA) are examples of an oxidation inhibitor; acid derivative, benzophenone and benzotriazole are examples of an ultraviolet absorbent; and phosphoric ester and carbodiimide are example of a stabilizer. It is clear that this passage is a list of possible classes of additives, each having two or three examples.

Thus, the disclosure of this passage may be summarized as follows:

In order to enhance thermal stability during formation, the compound may include:
(a) an oxidation inhibitor such as:
(a1) 2,6-di-t-butyl-4-methylphenol (BHT) and
(a2) butyl hydroxyanisole (BHA),
or
(b) an ultraviolet absorbent such as:
(b1) salicylic acid derivative,
(b2) benzophenone and
(b3) benzotriazole,
or
(c) a stabilizer such as
(c1) phosphoric ester and
(c2) carbodiimide.

In fact, this reading of Imamura is further strengthened by the similar disclosure in Ariga. Please see column 14, lines 25-32 of Ariga, which discloses:

> In addition, the thermal stability during molding of the polyester composition (VI) of the present invention can be improved by using an antioxidant such as 2,6-di-t-butyl4-methylphenol (BHT) or butyl-hydroxyanisol (BRA), an ultraviolet absorber such as salicylic acid derivatives or benzophenone- and benzotriazole-based ultraviolet absorbers, or a stabilizer such as phosphate ester, isocyanate or carbodiimide.

Additionally, it appears that the Office Action contradicts its own position. It appears that *if* Imamura actually disclosed the simultaneous use of a benzotriazole and a carbodiimide, the Office Action would have made a rejection based on 35 U.S.C. §102. However, the pending rejection is based on 35 U.S.C. §103. The Office Action essentially acquiesces to the fact that neither Imamura nor Ariga teach the conjunctive use of benzotriazole and carbodiimide, since the Office Action relies on Murschall '758 and Murschall '843 to provide this teaching. Therefore,

Applicants strongly refute the Office Action's interpretation of Imamura to disclose the conjunctive use of benzotriazole **and** carbodiimide.

II. Further explanation of the Declaration

As mentioned above, the Office Action states that the Declaration is not relevant. In response, Applicants respectfully explain the relevance of the Declaration. First, Applicants note that polyesters may be aliphatic polyesters or aromatic polyesters, depending on the presence or absence of an aromatic ring. Additionally, Applicants note aliphatic polyesters and aromatic polyesters have different properties. A very similar Declaration was submitted in order to successfully overcome the rejections based on Kaufhold '266, Kaufhold '995 and Prissok, all of which disclosed a thermoplastic polyurethane (U) in conjunction with carbodiimide (B) and benzotriazole (C).

With regard to benzotriazole and carbodiimide, the Office Action states that Murschall '758 and Murschall '843 were "both relied upon solely to show the known use of these constituents together." Applicants do not disagree that Murschall '758 and Murschall '843 disclose the conjunctive use of benzotriazole and carbodiimide. Applicants also do not disagree that the mere fact that there are known compounds that utilize both benzotriazole and carbodiimide may be sufficient to establish *prima facie* obviousness. However, as explained by MPEP §716.02(a)(II), "[e]vidence of unobvious or unexpected advantageous properties, such as superiority in a property the claimed compound shares with the prior art, can rebut *prima facie* obviousness."

In other words, both Imamura and Ariga disclose the use of (A) aliphatic polyesters. Both Imamura and Ariga disclose the use of (B) carbodiimide ***or*** (C) benzotriazole, to improve thermal resistance. Additionally, both Murschall '758 and Murschall '843 disclose the use of aromatic polyesters (Z, for reference), in combination with (B) carbodiimide ***and*** (C) benzotriazole. Thus, Imamura and Ariga disclose A+(B/C), while Murschall '759 and Murschall '843 disclose (Z) + (B) + (C).

The Declaration clearly shows that hydrolysis resistance is improved in a compound having (A) + (B) + (C), as compared to a compound having (A) + (B). No such improvement is found when comparing a compound having (Z) + (B) + (C) with a compound having (Z) + (B). Additionally, the Declaration submitted on October 5, 2006 clearly shows no hydrolysis resistance improvement is found in a compound having (U) + (B) + (C), as compared to a compound having a polyurethane (U) + (B). In view of both of these Declarations, it is abundantly clear that it is not the mere combination of benzotriazole and carbodiimide ((B) + (C)) which results in the improvement of hydrolysis resistance. One having ordinary skill in the art would not have predicted that adding (C) to (A) + (B) would result in dramatically improved hydrolysis resistance. It is only the claimed inventive combination of (A) + (B) + (C) which results in the improved hydrolysis resistance, a synergistic effect. According to MPEP §716.02(a), evidence of a greater than expected result may also be shown by demonstrating an effect which is greater than the sum of each of the effects taken separately (i.e., demonstrating "synergism"). *Merck & Co. Inc. v. Biocraft Laboratories Inc.*, 874 F.2d 804, 10 USPQ2d 1843 (Fed. Cir.), *cert. denied*, 493 U.S. 975 (1989).

As discussed above, neither Imamura nor Ariga disclose or suggest using both benzotriazole ***and*** carbodiimde, but rather present these as alternative compounds for improving thermal resistance. Because the combination of benzotriazole and carbodiimide is clearly shown by the Declarations not to necessarily result in a benefit in improved hydrolysis resistance, one having ordinary skill in the art would not have been motivated to use them together. One having ordinary skill in the art would not have found it obvious to combine an aliphatic polyester (A) with carbodiimide (B) ***and*** benzotriazole (C) in the recited amounts, in order to obtain the above-referenced synergistic effects.

In conclusion, Applicants respectfully submit that the discussion above, in conjunction with the experimental results of the two previously filed Declarations, is sufficient to rebut *prima facie* obviousness. Accordingly, Applicants respectfully submit that the invention as claimed is not obvious in view of the cited references. Favorable reconsideration is respectfully requested.

For at least the foregoing reasons, the claimed invention distinguishes over the cited art and defines patentable subject matter. Favorable reconsideration is earnestly solicited.

Should the Examiner deem that any further action by applicants would be desirable to place the application in condition for allowance, the Examiner is encouraged to telephone applicants' undersigned attorney.

If this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 50-2866.

Respectfully submitted,

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